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Pulpwood Production

in the North-Central Region by County, 1979

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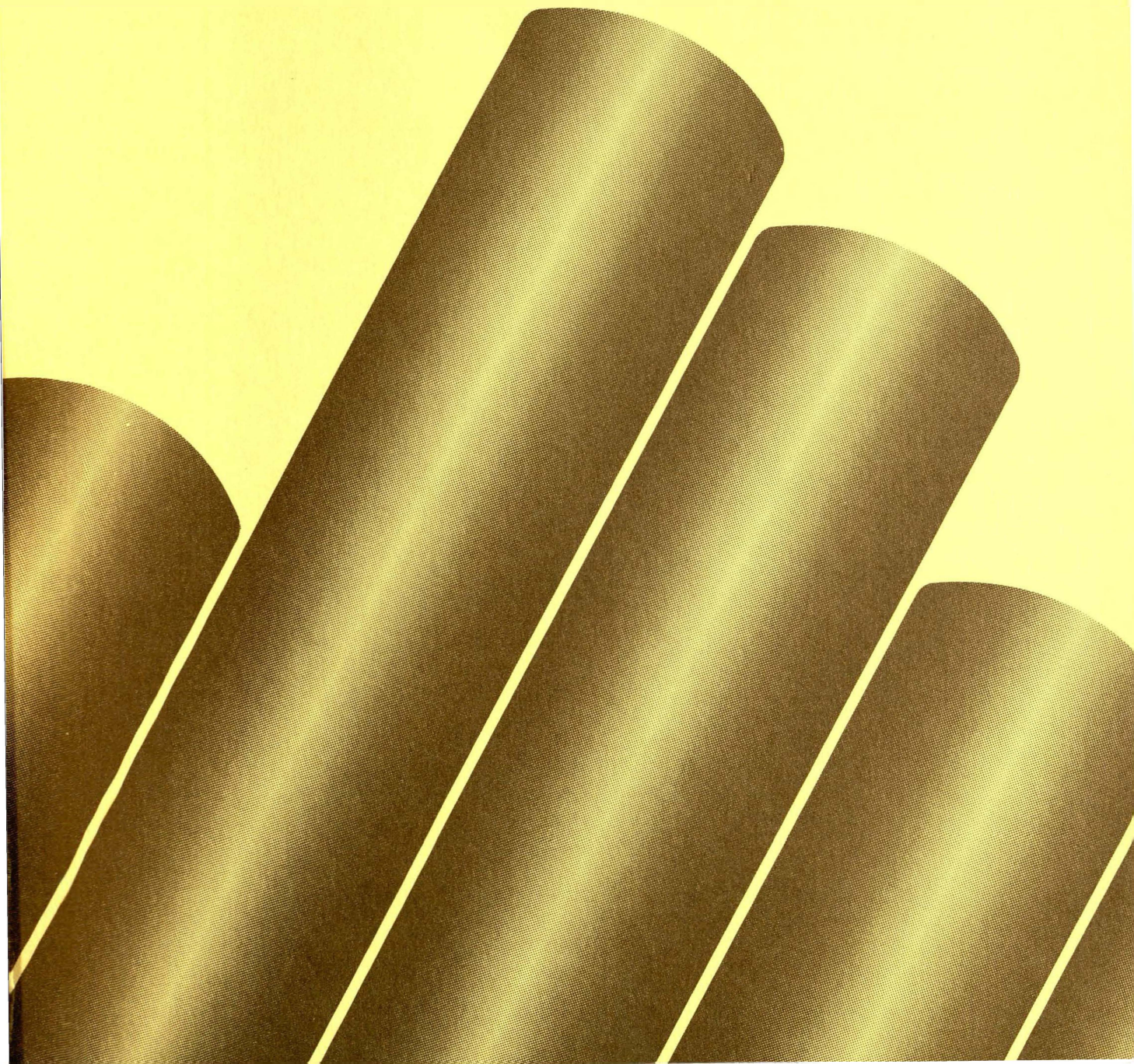

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HIGHLIGHTS

Lake States

For the first time, logs, bolts, and wood residue used in manufacturing particleboard and waferboard are included in this annual series.

Lake States pulpwood production was 5.55 million cords in 1979 (table 1). Major production gains were in white birch, hard maple, and soft maple. Pine production reached a new high supported by a 13-percent rise in the red pine harvest. Whole tree chips accounted for 7 percent of the pulpwood; Michigan was the leading producer.

Michigan and Wisconsin loggers cut record amounts of pine and birch. Wisconsin provided three-fifths of the red pine cut in the Lake States. In Minnesota, the pine harvest fell to a new modern low.

Wisconsin was the major purchaser of Canadian softwood residue which was imported into the Lake States at record levels for the seventh consecutive year.

In Minnesota, three waferboard plants are being built and one is tripling its capacity. When this construction is completed, composition board capacity is likely to double in the Lake States.

Central States

Pulpwood production was 476,000 cords, up 11 percent from 1978 and second only to the record output in 1974. Record high exports were half of the total production. Indiana and Iowa broke previous pulpwood production records.

Pulpwood receipts rose 15 percent to 295,000 cords. Imports (19 percent of all receipts) came from 15 States.

PULPWOOD PRODUCTION IN THE NORTH CENTRAL REGION, BY COUNTY, 1979

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This is the 21st annual report of the pulpwood harvest in Lake States counties and the 20th annual report of the Central States harvest. Pulpwood constitutes more than half the timber products harvested annually in the Lake States (Michigan, Minnesota, and Wisconsin) and is an important product in the Central States (Illinois, Indiana, Iowa, and Missouri).

Current detailed pulpwood production[1] information is necessary for intelligent planning and decisionmaking in wood procurement, forest resource management, and forest industry development. Also, researchers need current pulpwood information for project planning.

For the first time, logs, bolts and wood residue used in manufacturing particleboard and waferboard are included in this annual series. Wood used at composition board plants is identical or nearly identical to wood used at pulpmills.

Because composition board plants primarily use aspen and wood residue, it is possible both to analyze roundwood use trends for other species and to compare survey results with 1978 without large distortions from initial inclusion of these board plants in 1979.

Pulpmills, particleboard plants, and waferboard plants using North Central States timber in 1979 reported their pulpwood receipts[2] by species groups and counties of origin. This report presents the results of the survey, analyzes the data where appropriate, compares results with 1978 or earlier years, and discusses trends in pulpwood production and use.

The Lake States and Central States are discussed separately because the forest types in each area are different and less information can be released about the Central States (more detailed data on pulpwood production and receipts in the Central States would reveal the operations of individual mills).

Pulpwood production in Minnesota is completely and accurately shown. However, to prevent disclosure of confidential information about softwood pulpwood use by individual companies, the total quantity of softwood pulpwood imports and exports between Minnesota and Canada are not reported. Thus, some Minnesota softwood shipped to Canada is shown as remaining and used in Minnesota, and receipts of Canadian softwood in Minnesota are understated.

LAKE STATES

Production

Pulpwood production reached 5.55 million cords in the Lake States in 1979. Roundwood (including chips from roundwood) continued to provide 9 out of 10 cords; the remainder was residue from local wood-using plants.[3]

Major species harvested were aspen (2,298,000 cords) and jack pine (599,000 cords). Other important species, each providing between 200,000 and 300,000 cords, were balsam fir, red pine, soft maple, white birch, hard maple, and spruce.

[1] *Pulpwood production, determined from mill receipts, is the annual volume of pulpwood cut in a specific county or region, plus the annual wood residue volume produced by sawmills, veneer mills, etc., in a specific State or region that was used for pulp manufacturing.*

[2] *Pulpwood receipts are the volume of wood received by mills in a specific State or region, regardless of the geographic source.*

[3] *Residue is the byproduct from sawmills, veneer mills, cooperage mills, and other wood-using plants that is used for pulping. Residue includes slabs, edgings, veneer cores, sawdust, wood flour, and chips manufactured from slabs, edgings, and veneer cores.*

Table 1.--Production and imports of pulpwood, Lake States, 1979

(In standard cords, unpeeled)

Species and destination	Production by States[1]				Imports			
	Michigan	Minnesota	Wisconsin	Regional total	Other U.S.[2]	Canada	Total imports	Total receipts
Cedar								
Michigan	8,175	0	367	8,542	0	0	0	8,542
Total	8,175	0	367	8,542	0	0	0	8,542
Balsam fir								
Michigan	43,318	0	3,864	47,182	0	0	0	47,182
Minnesota	0	108,908	307	109,215	0	0	0	109,215
Wisconsin	33,811	936	80,113	114,860	0	100	100	114,960
Exported[3]	8,160	7,591	0	15,751	0	0	0	0
Total	85,289	117,435	84,284	287,008	0	100	100	271,357
Hemlock								
Michigan	39,126	0	6,646	45,772	0	0	0	45,772
Wisconsin	5,780	0	33,082	38,862	0	0	0	38,862
Total	44,906	0	39,728	84,634	0	0	0	84,634
Jack pine								
Michigan	145,932	0	1,665	147,597	0	0	0	147,597
Minnesota	0	110,345	0	110,345	0	3,105	3,105	113,450
Wisconsin	113,484	22,700	196,330	332,514	54,347[4]	345	54,692[5]	387,206[5]
Exported[3]	4,001	5,024	0	9,025	0	0	0	0
Total	263,417	138,069	197,995	599,481	54,347	3,450	57,797	648,253
Red pine								
Michigan	68,082	0	953	69,035	0	0	0	69,035
Minnesota	0	11,135	0	11,135	0	0	0	11,135
Wisconsin	9,737	4,378	142,367	156,482	138	0	138	156,620
Total	77,819	15,513	143,320	236,652	138	0	138	236,790
White pine								
Michigan	5,060	0	511	5,571	0	0	0	5,571
Minnesota	0	4,892	0	4,892	0	0	0	4,892
Wisconsin	3,699	21	19,304	23,024	87	0	87	23,111
Total	8,759	4,913	19,815	33,487	87	0	87	33,574
Spruce								
Michigan	12,100	0	700	12,800	0	0	0	12,800
Minnesota	0	126,302	244	126,546	0	4,830	4,830	131,376
Wisconsin	16,314	21,517	18,189	56,020	56	20,192	20,248	76,268
Exported[3]	10,272	4,970	0	15,242	0	0	0	0
Total	38,686	152,789	19,133	210,608	56	25,022	25,078	220,444
Tamarack								
Michigan	1,766	0	124	1,890	0	0	0	1,890
Minnesota	0	17,354	0	17,354	0	79	79	17,433
Wisconsin	605	18,421	1,382	20,408	0	223	223	20,631
Total	2,371	35,775	1,506	39,652	0	302	302	39,954
Ash								
Michigan	9,479	0	0	9,479	0	0	0	9,479
Minnesota	0	559	0	559	0	0	0	559
Wisconsin	5,541	464	32,110	38,115	0	0	0	38,115
Exported[3]	0	68	0	68	0	0	0	0
Total	15,020	1,091	32,110	48,221	0	0	0	48,153
Aspen								
Michigan	525,785	0	919	526,704	0	0	0	526,704
Minnesota	36	717,016	15,379	732,431	0	594	594	733,025
Wisconsin	183,358	82,970	733,014	999,342	0	0	0	999,342
Exported[3]	221	37,609	1,407	39,237	0	0	0	0
Total	709,400	837,595	750,719	2,297,714	0	594	594	2,259,071
Balsam poplar								
Michigan	21,936	0	117	22,053	0	0	0	22,053
Minnesota	0	24,510	0	24,510	0	0	0	24,510
Exported[3]	0	679	0	679	0	0	0	0
Total	21,936	25,189	117	47,242	0	0	0	46,563
Basswood								
Michigan	6,171	0	3	6,174	0	0	0	6,174
Minnesota	0	512	0	512	0	0	0	512
Wisconsin	120	0	14,775	14,895	0	0	0	14,895
Exported[3]	0	49	551	600	0	0	0	0
Total	6,291	561	15,329	22,181	0	0	0	21,581
Beech								
Michigan	16,325	0	85	16,410	0	0	0	16,410
Wisconsin	461	0	12	473	0	0	0	473
Total	16,786	0	97	16,883	0	0	0	16,883
White birch								
Michigan	73,214	0	312	73,526	0	0	0	73,526
Minnesota	0	3,207	0	3,207	0	0	0	3,207
Wisconsin	7,743	3,188	127,838	138,769	0	0	0	138,769
Exported[3]	0	262	217	479	0	0	0	0
Total	80,957	6,657	128,367	215,981	0	0	0	215,502
Yellow birch								
Michigan	11,163	0	71	11,234	0	0	0	11,234
Wisconsin	16,449	8	22,888	39,345	0	0	0	39,345
Total	27,612	8	22,959	50,579	0	0	0	50,579
Cottonwood								
Exported[3]	0	0	93	93	0	0	0	0
Total	0	0	93	93	0	0	0	0
Elm								
Michigan	7,442	0	23	7,465	0	0	0	7,465
Minnesota	0	1,038	0	1,038	0	0	0	1,038
Wisconsin	23,639	72	117,449	141,160	0	0	0	141,160
Exported[3]	0	194	1,698	1,892	0	0	0	0
Total	31,081	1,304	119,170	151,555	0	0	0	149,663

(Table 1 continued on next page)

(Table 1 continued)

Species and destination	Production by States 1/				Imports			Total receipts
	Michigan	Minnesota	Wisconsin	Regional total	Other U.S. 2/	Canada	Total imports	
Hickory								
Wisconsin	0	0	438	438	0	0	0	438
Total	0	0	438	438	0	0	0	438
Hard maple								
Michigan	44,203	0	197	44,400	0	0	0	44,400
Wisconsin	57,268	482	110,753	168,503	0	0	0	168,503
Exported 3/	0	191	0	191	0	0	0	0
Total	101,471	673	110,950	213,094	0	0	0	212,903
Soft maple								
Michigan	126,709	0	331	127,040	0	0	0	127,040
Minnesota	0	482	0	482	0	0	0	482
Wisconsin	21,863	480	77,611	99,954	0	0	0	99,954
Exported 3/	0	6	2,316	2,322	0	0	0	0
Total	148,572	968	80,258	229,798	0	0	0	227,476
Red oak								
Michigan	92,148	0	5	92,153	0	0	0	92,153
Minnesota	0	963	0	963	0	0	0	963
Wisconsin	1,681	178	52,926	54,785	0	0	0	54,785
Exported 3/	0	137	1,842	1,979	0	0	0	0
Total	93,829	1,278	54,773	149,880	0	0	0	147,901
White oak								
Michigan	11,757	0	0	11,757	0	0	0	11,757
Wisconsin	7	74	21,922	22,003	0	0	0	22,003
Exported 3/	0	274	674	948	0	0	0	0
Total	11,764	348	22,596	34,708	0	0	0	33,760
Other hardwoods								
Michigan	6,170	0	19	6,189	0	0	0	6,189
Wisconsin	3,030	0	5,283	8,313	0	0	0	8,313
Total	9,200	0	5,302	14,502	0	0	0	14,502
Total roundwood								
Michigan	1,276,061	0	16,912	1,292,973	0	0	0	1,292,973
Minnesota	36	1,127,223	15,930	1,143,189	0	8,608	8,608	1,151,797
Wisconsin	504,590	155,889	1,807,786	2,468,265	54,628	20,860	75,488	2,543,753
Exported 3/	22,654	57,054	8,798	88,506	0	0	0	0
Total	1,803,341	1,340,166	1,849,426	4,992,933	54,628	29,468	84,096	4,988,523
Residue, softwood								
Michigan	11,003	0	267	11,270	0	1,586	1,586	12,856
Minnesota	0	32,825	0	32,825	27,697	5,847	33,544	66,369
Wisconsin	2,814	6,136	45,935	54,885	205,933	71,037	276,970	331,855
Exported 3/	1,493	3,743	2,321	7,557	0	0	0	0
Total	15,310	42,704	48,523	106,537	233,630	78,470	312,100	411,080
Residue, hardwood								
Michigan	140,756	0	29,548	170,304	13,815	0	13,815	184,119
Minnesota	0	66,263	4,522	70,785	864	4,095	4,959	75,744
Wisconsin	8,727	7,187	170,079	185,993	5,571	0	5,571	191,564
Exported 3/	13,050	1,743	6,574	21,367	0	0	0	0
Total	162,533	75,193	210,723	448,449	20,250	4,095	24,345	451,427
All wood material								
Michigan	1,427,820	0	46,727	1,474,547	13,815	1,586	15,401	1,489,948
Minnesota	36	1,226,311	20,452	1,246,799	28,561	18,550	47,111	1,293,910
Wisconsin	516,131	169,212	2,023,800	2,709,143	266,132	91,897	358,029	3,067,172
Exported 3/	37,197	62,540	17,693	117,430	0	0	0	0
Total	1,981,184	1,458,063	2,108,672	5,547,919	308,508	112,033	420,541	5,851,030

1/ Vertical columns of figures under box heading--production by States--present the amount of pulpwood cut in each State.
2/ Mostly western States.
3/ Pulpwood shipped to mills outside of region.
4/ Ponderosa pine.
5/ Includes ponderosa pine from other U.S.

Production climbed among many species with significant advances in white birch (41,000 cords), hard maple (39,000 cords), and soft maple (35,000 cords). Pine output reached a new high assisted by a 13-percent rise in red pine harvesting. Most of the red pine is cut in plantations that are mature enough to provide commercial thinnings. Birch harvesting rose to a new peak as the pulp industry continued to seek technological improvements for processing more of this underutilized species. Soft maple harvesting surpassed 200,000 cords for the first time.

Hemlock production fell 16,000 cords to the lowest point in more than 30 years. Spruce output plunged 15,000 cords, not far from its 30-year low.

Lake States loggers produced 382,000 cords of whole tree chips[4], 7 percent of the pulpwood from all sources. Production of whole tree chips by species group and State was:

State	Softwoods	Aspen	Other hardwoods
		Thousand cords	
Michigan	7.4	157.3	70.0
Minnesota	—	133.8	7.2
Wisconsin	—	6.8	—

Michigan.—Demand for Michigan pulpwood was 1.98 million cords. Michigan loggers cut record quantities of pine and birch—the jack pine harvest increased by 71,000 cords. Top-producing counties were Iron, Marquette, Menominee, and Delta.

Minnesota.—Minnesota's 1.46 million cord output was 57 percent aspen, 10 percent spruce, and 9 percent jack pine. Demand for Minnesota spruce and birch remained low. The pine cut fell beneath the previous modern day low set in 1949. Transportation

[4] *Pulpwood produced from chipping entire trees (all portions of trees above ground, except the stumps).*

costs are an important factor affecting demand for Minnesota pine. Four counties—St. Louis, Koochiching, Itasca, and Beltrami—furnished 65 percent of the roundwood from all species.

Wisconsin.—Wisconsin furnished 2.11 million cords and set new production highs for pine and birch. Red pine harvesting was particularly strong, accounting for three-fifths of the red pine pulpwood cut in the Lake States. Counties supplying more than 100,000 cords were Oneida, Marinette, Price, Forest, and Sawyer.

The distribution of the harvest is shown here in two ways: first, the amount of pulpwood cut relative to the growing stock volume in major pulpwood species (fig. 1); and second, the amount of pulpwood cut relative to commercial forest area (fig. 2). Harvesting was heavy in Central and Northeastern Wisconsin and most of Michigan other than the Southern Lower Peninsula.

Receipts

Forty pulpmills, three particleboard plants, and two waferboard plants acquired 5.85 million cords of pulpwood in 1979. Nine out of every 20 cords procured were aspen which was widely used in 41 of the 45 plants (table 2).

For the seventh consecutive year, Canada shipped record amounts of softwood residue to the Lake States, primarily to Wisconsin. Pulpwood imports from other States totaled 308,000 cords of which three-fourths was softwood residue primarily from South Dakota, Wyoming, Montana, and Colorado.

Michigan.—Michigan forests provided 96 percent of the 1.49 million cords received in the State. Less than 1,000 cords of aspen were imported. After aspen, the leading species procured were jack pine, soft maple, and red oak.

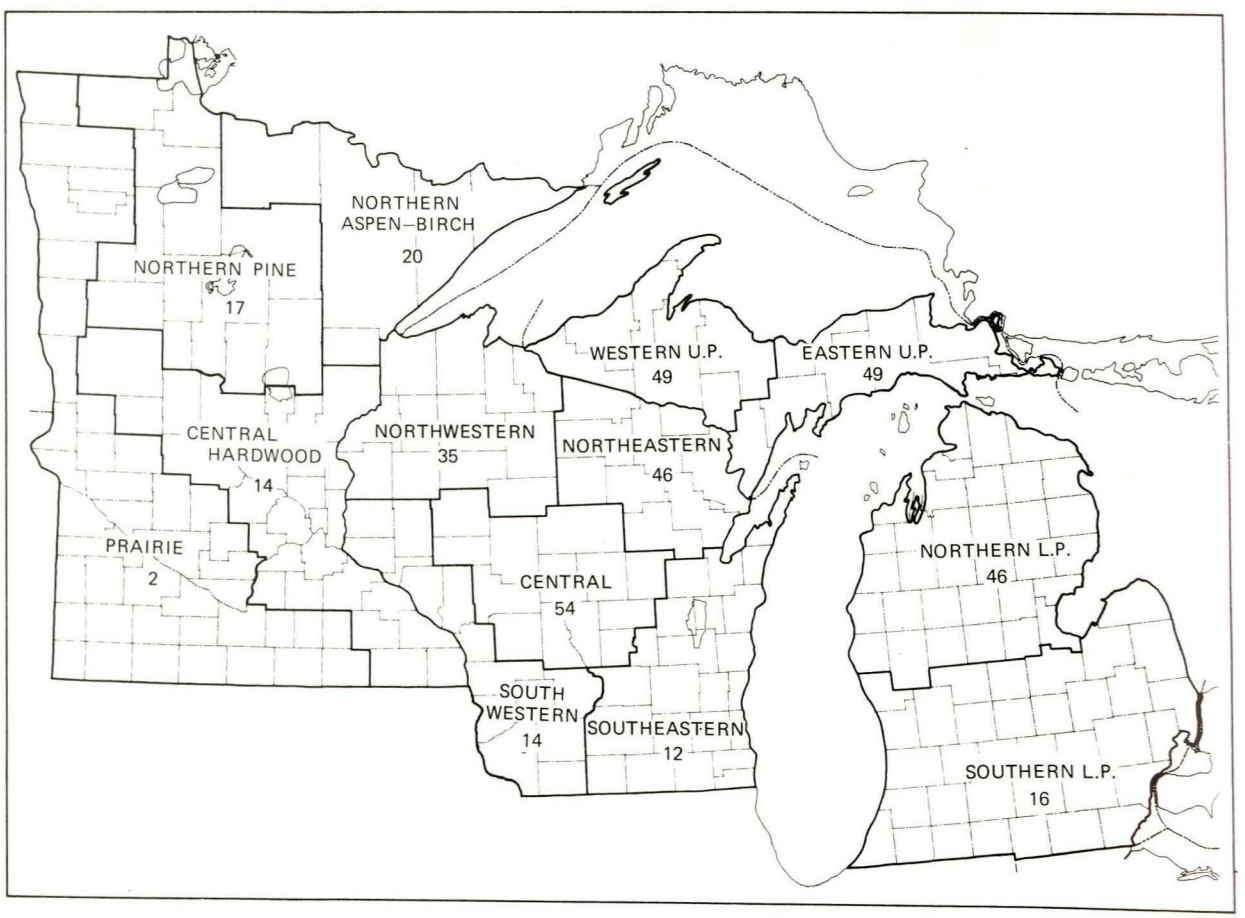


Figure 1.—*Cords of pulpwood bolts and logs harvested per 1,000 cords of merchantable volume in principal pulpwood species by Forest Inventory Unit, 1979. Merchantable volume was determined during the last forest inventory in each State.*

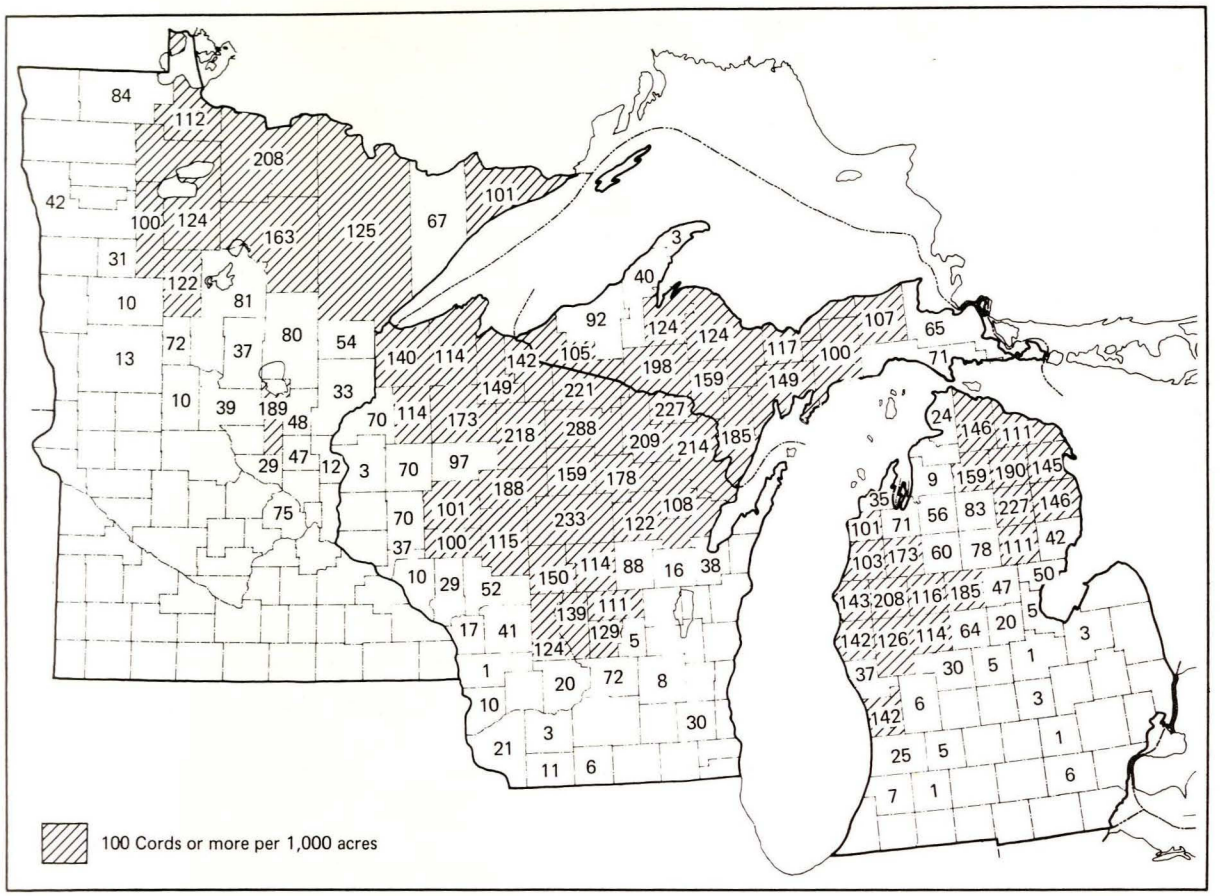


Figure 2.—*Cords of pulpwood cut per 1,000 acres of stocked commercial forest land in principal pulpwood-producing counties, 1979. Acres of stocked commercial forest land were determined during the last forest inventory in each State.*

Wisconsin.—Receipts were 3.07 million cords including 516,000 cords from Michigan, 169,000 cords from Minnesota, 266,000 cords from other (primarily western) States, and 92,000 cords from Canada. Principal imported species were jack pine, spruce, tamarack, aspen, and hard maple. Out-of-State sources supplied 86 percent of the softwood residue to Wisconsin mills.

Industry Trends and Analysis

Average daily pulp production fell slightly to 11,160 tons (table 3). Annual production capacity at particleboard and waferboard plants was 357 million square feet:

Company	Location	Capacity[5] Million square feet (¾-inch basis)
Champion International Corp.	Gaylord, MI	165
Blandin Wood Products Co.	Grand Rapids, MN	45
Publishers Paper Co.	Virginia, MN	15
Louisiana-Pacific Corp.	Hayward, WI	65
Weyerhaeuser Co.	Marshfield, WI	67

In 1979, the smallest particleboard plant in the Lake States closed permanently. However, in Minnesota, three waferboard plants are under construction and one is tripling its capacity. When these plants are completed, composition board capacity is likely to nearly double in the Lake States. Meanwhile, another waferboard plant is in the planning stage and several pulpmill expansions are underway or being planned.

[5]*Directory of the Forest Products Industry, 1980.*

Table 2.--Numbers of industrial plants in the Lake States using a particular species or residue for pulping and composition board in 1979

Species and kind of material	Total Lake States	Michigan	Minnesota	Wisconsin
Aspen	41	9	11	21
Balsam fir	16	4	5	7
Birch	20	6	1	13
Hemlock	7	1	--	6
Pine	9	3	2	4
Spruce	15	2	5	8
Tamarack	9	1	2	6
Maple	17	7	1	9
Oak	15	7	1	7
Other hardwoods	22	7	5	10
Softwood residue	14	2	3	9
Hardwood residue	19	7	4	8
Total plants[1/]	45	9	11	25

[1/] Some plants use more than one species, so numbers in columns cannot be added.

Based on 3-year running averages, birch pulpwood production has increased annually by 9.7 percent between 1969 and 1978, other hardwoods (excluding aspen and birch) by 6.8 percent, balsam fir by 6.3 percent, pine by 2.2 percent, while spruce has decreased annually by 0.1 percent (table 4). Between 1969 and 1974, spruce output had average annual increases of 4.2 percent but has declined annually since 1974 by 5.2 percent.

The trend in birch harvesting is encouraging because birch is greatly underutilized from a sustained yield viewpoint. Salvage of budworm-damaged balsam fir was a major reason for the increased harvests of fir.

CENTRAL STATES

Production

Pulpwood production rose 11 percent to 476,000 cords in 1979, the second highest production ever recorded (table 5). Hard hardwoods and hardwood residue accounted for most of the gain. Exports from the Central States reached a record high; half of the total production was shipped to Kentucky, Ohio, Minnesota, Wisconsin, and Michigan. Hardwood residue was the dominant export.

Indiana, the top producer, and Iowa produced more pulpwood than in any other year. Hardwood residue was the major pulpwood component in Indiana; soft hardwood was the leading component in Iowa. Illinois and Missouri had stable production.

Loggers cut pulpwood in 35 counties in Illinois, 23 in Indiana, 19 in Missouri, and 14 in Iowa (fig. 3). Logging territories expanded in east central and southern Illinois, south central Indiana and northwestern Missouri, and contracted in southeastern Missouri.

Receipts

Pulpwood receipts at 12 Central States pulpmills climbed 15 percent to 295,000 cords in 1979. All roundwood and residue species groups contributed to the advance. Imports were 19 percent of the total receipts; imports by Illinois mills rose 86 percent and were one-third of their receipts. Fifteen States, primarily Lake and southern States, shipped wood to the Central States.

Industry Trends and Analysis

Average daily pulp production remained at 1,150 tons per day (table 6). Mill ownership remained the

Table 3.--Active woodpulp mills in the Lake States, by location, type of pulp produced, and average daily production, 1979

(In tons per 24 hours)[1/]

Company	Location	Total	Average production			
			Sulfite	Kraft	Groundwood and other mechanical	Semi-chemical
Michigan:						
Abitibi Corp.	Alpena	430	0	0	430	0
Celotex Corp.	L'Anse	270	0	0	270	0
Champion International	Ontonagon	440	0	0	0	440
Manistique Pulp and Paper Co.	Manistique	90	0	0	90	0
Mead Corp.	Escanaba	750	0	600	150	0
Menasha Corp.	Otsego	225	0	0	0	225
Packaging Corp.of America	Filer City	600	0	0	0	600
Warren Co., S.D.	Muskegon	250	0	250	0	0
Total.....	8 Plants.....	3,055	0	850	940	1,265
Minnesota:						
Blandin Paper co.	Grand Rapids	325	0	0	325	0
Hennepin Paper Co.	Little Falls	75	0	0	75	0
Boise Cascade Corp.	International Falls	880	0	340	540	0
Potlatch Corp.	Cloquet	440	0	440	0	0
Superwood Corp.	Bemidji	90	0	0	90	0
St.Regis Paper Co.	Sartell	135	0	0	135	0
Superwood Corp.	Duluth	350	0	0	350	0
Champion International	St. Paul	300	0	0	0	300
Conwed Corp.	Cloquet	350	0	0	350	0
Total.....	9 Plants.....	2,945	0	780	1,865	300
Wisconsin:						
American Can Co.	Green Bay	210	150	0	60	0
Weyerhaeuser Co.	Rothschild	210	210	0	0	0
Badger Paper Mills	Peshtigo	110	110	0	0	0
Appleton Papers Inc.	Combined locks	200	0	0	200	0
Consolidated Papers, Inc.	Appleton	130	130	0	0	0
Consolidated Papers, Inc.	Stevens Point	115	0	0	115	0
Consolidated Papers, Inc.	Wisconsin Rapids	775	0	465	310	0
Green Bay Packaging, Inc.	Green Bay	200	0	0	0	200
Flambeau Paper Co.	Park Falls	110	110	0	0	0
Midtec Paper Corp.	Kimberly	115	0	0	115	0
Pentair Industries	Niagara	170	0	0	170	0
Mosinee Paper Mills Co.	Mosinee	200	0	200	0	0
Nekoosa Papers Inc.	Nekoosa	310	0	310	0	0
Nekoosa Papers Inc.	Port Edwards	215	215	0	0	0
Owens-Illinois	Tomahawk	1,000	0	0	0	1,000
Procter and Gamble Inc.	Green Bay	(2/)	(2/)	(2/)	(2/)	(2/)
Rhinelander Paper Co.	Rhinelander	75	75	0	0	0
Flinkote Company	Cornell	100	0	0	100	0
Superior Fiber Products Co.	Superior	180	0	0	180	0
Thilmany Pulp and Paper Co.	Kaukauna	400	0	400	0	0
Tomahawk Pulp Co., Inc.	Tomahawk	50	0	0	50	0
Wausau Paper Mills Co.	Brokaw	185	185	0	0	0
Superwood	Phillips	100	0	0	100	0
Total.....	23 Plants.....	5,160	1,185	1,375	1,400	1,200
All States	40 Plants	11,160	1,185	3,005	4,205	2,765

1/ Lockwood's Directory of the Paper and Allied Industries--1980.

2/ Capacity not available.

Table 4.--Average annual pulpwood production for selected species groups, based on a 3-year running average, Lake States, 1969-1978

(In thousand standard cords, unpeeled)

Year	Balsam fir	Pine	Spruce	Birch	Other hardwoods[1]
1969	157[2]	662	221	99	454
1970	153	699	227	112	493
1971	167	709	239	124	562
1972	174	682	249	136	656
1973	209	706	262	176	813
1974	249	701	272	186	750
1975	261	734	255	205	742
1976	266	715	239	193	667
1977	254	764	224	215	773
1978	271	807	219	228	823
Average annual change (percent)	+6.3	+2.2	-0.1	+9.7	+6.8

[1] Excludes aspen and birch.

[2] Average of annual production during 1968, 1969, and 1970.

same and no important mill capacity changes or new mill construction was announced.

Softwood plantations (mainly pine) are maturing in the Central States and have provided more pulpwood from thinnings in recent years. Softwoods, accounting for 12 percent of the roundwood cut in 1979, will probably increase their share of the roundwood cut during the next decade.

During the 1975-1979 period, annual production has stabilized in the 50,000 to 70,000 cord range for soft hardwoods and in the 50,000 to 85,000 cord range for hard hardwoods. Demand for these species at Central States mills depends greatly on housing starts and home improvements. Ten of the 12 mills produce home-building materials.

Table 5.--Production and imports of pulpwood, Central States, 1979

(In standard cords, unpeeled)[1/]

Species and destination	Prouction by States [2/]				Imports				Total receipts
	Illinois	Indiana	Iowa	Missouri	Regional total	Lake States	Other U.S.	Total imports	
SOFTWOODS:									
Illinois	7,072	3,926	0	1,753	12,751	0	0	0	12,751
Ind., Iowa, Mo. [3/]	0	0	0	0	0	0	4,800	4,800	4,800
Exported [4/]	6,406	0	0	55	6,461	0	0	0	0
Total	13,478	3,926	0	1,808	19,212	0	4,800	4,800	17,551
SOFT HARDWOODS:									
Illinois	3,846	1,818	154	3,843	9,661	5,277	96	5,373	15,034
Ind., Iowa, Mo. [3/]	5,924	10,388	27,663	9,795	53,770	1,978	1,203	3,181	56,951
Exported [4/]	2,141	0	0	3,550	5,691	0	0	0	0
Total	11,911	12,206	27,817	17,188	69,122	7,255	1,299	8,554	71,985
HARD HARDWOODS:									
Illinois	2,883	2,387	0	0	5,270	219	109	328	5,598
Ind., Iowa, Mo. [3/]	5,427	10,336	11,612	2,439	29,814	2,899	1,197	4,096	33,910
Exported [4/]	19,141	9,104	0	4,741	32,986	0	0	0	0
Total	27,451	21,827	11,612	7,180	68,070	3,118	1,306	4,424	39,508
TOTAL ROUNDWOOD:									
Illinois	13,801	8,131	154	5,596	27,682	5,496	205	5,701	33,383
Ind., Iowa, Mo. [3/]	11,351	20,724	39,275	12,234	83,584	4,877	7,200	12,077	95,661
Exported [4/]	27,688	9,104	0	8,346	45,138	0	0	0	0
Total	52,840	37,959	39,429	26,176	156,404	10,373	7,405	17,778	129,044
RESIDUE, SOFTWOOD:									
Illinois	952	0	1,382	67	2,401	6,299	4,382	10,681	13,082
Ind., Iowa, Mo. [3/]	0	0	0	0	0	0	4,800	4,800	4,800
Exported [4/]	1,558	143	6,136	1,781	9,618	0	0	0	0
Total	2,510	143	7,518	1,848	12,019	6,299	9,182	15,481	17,882
RESIDUE, HARDWOOD:									
Illinois	11,394	11,739	339	7,963	31,435	13,486	1,224	14,710	46,145
Ind., Iowa, Mo. [3/]	14,322	48,220	15,093	16,138	93,773	7,881	0	7,881	101,654
Exported [4/]	20,828	106,364	6,435	49,259	182,886	0	0	0	0
Total	46,544	166,323	21,867	73,360	308,094	21,367	1,224	22,591	147,799
ALL WOOD MATERIAL:									
Illinois	26,147	19,870	1,875	13,626	61,518	25,281	5,811	31,092	92,610
Ind., Iowa, Mo. [3/]	25,673	68,944	54,368	28,372	177,357	12,758	12,000	24,758	202,115
Exported [4/]	50,074	115,611	12,571	59,386	237,642	0	0	0	0
Total	101,894	204,425	68,814	101,384	476,517	38,039	17,811	55,850	294,725

[1/] Factors used in converting to standard green cords (128 cu. ft.) were: 4,500 pounds of soft hardwood roundwood; 5,000 pounds of hard hardwood or coniferous roundwood; 4,100 pounds of softwood chips (green); 4,400 pounds of hardwood chips (green); 2,500 Pounds of chips (all species, dry).

[2/] Vertical columns of figures under box heading--Production by States--present the amount of pulpwood cut in each State.

[3/] Combined to prevent disclosure of individual mill receipts.

[4/] Pulpwood shipped to mills outside the region.

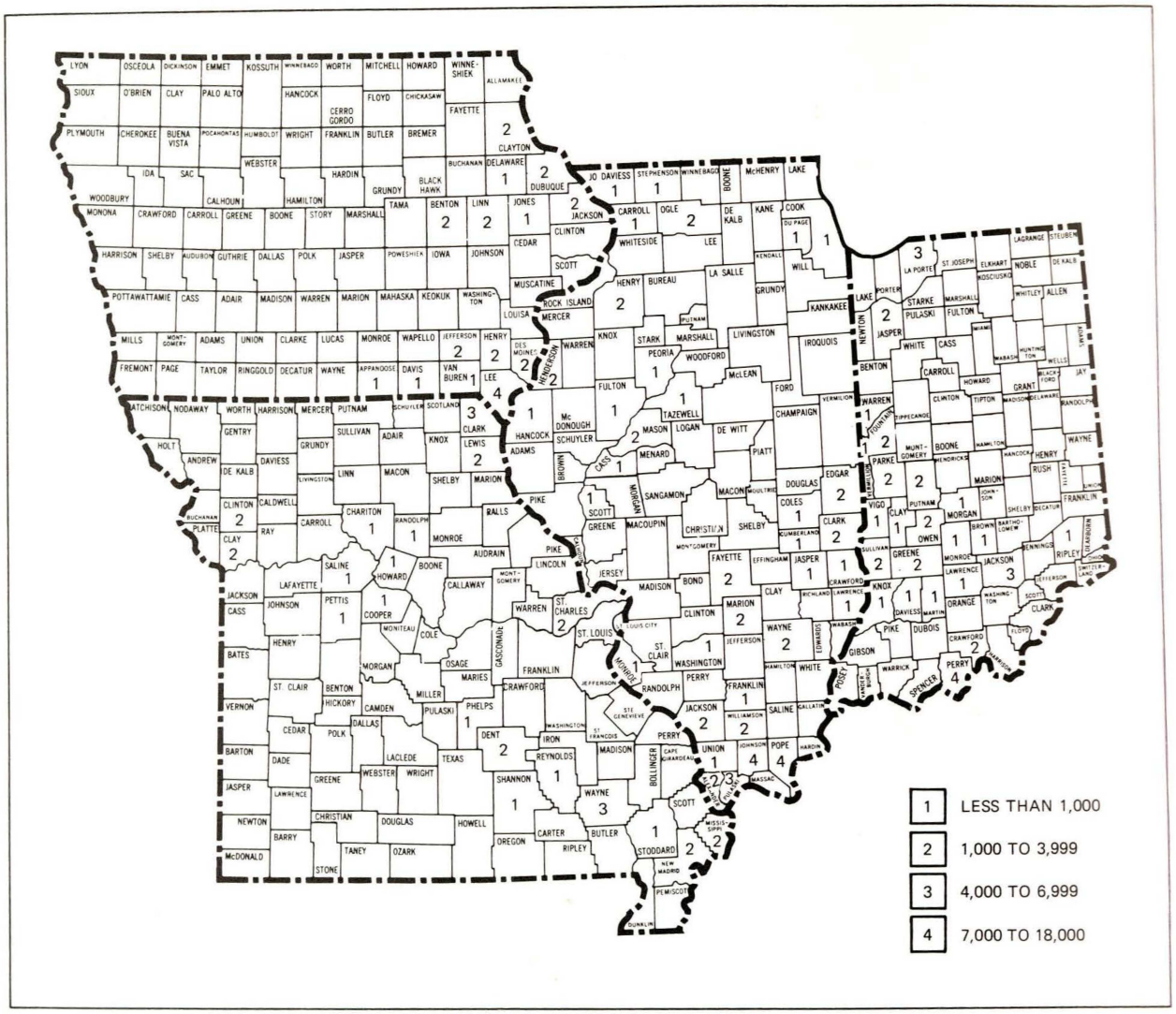


Figure 3.—*Harvest of pulpwood bolts in the Central States by counties, in standard cords, 1979.*

Table 6.--Active woodpulp mills in the Central States, by location, type of pulp produced, and average daily production, 1979

(In tons per 24 hours)[1/]

Company	Location	Average production				
		Total	Sulfite	Kraft	Groundwood and other mechanical	Semi-chemical
ILLINOIS:						
Bird and Son, Inc.	Chicago	40	0	0	40	0
Celotex Corp.	Peoria	90	0	0	90	0
Certain-Teed Products Corp.	East St. Louis	100	0	0	100	0
Flintkote Co., The	Mt. Carmel	40	0	0	40	0
GAF Corp.	Joliet	150	0	0	150	0
Johns-Manville Products Corp.	Waukegan	50	0	0	50	0
Celotex Corp.	Wilmington	30	0	0	30	0
Total.....	7 plants.....	500	0	0	500	0
INDIANA:						
Weston Paper and Mfg. Co.	Terre Haute	270	0	0	0	270
Total.....	1 plant.....	270	0	0	0	270
IOWA:						
Celotex Corp.	Dubuque	90	0	0	90	0
Consolidated Packaging Corp.	Fort Madison	140	0	0	0	140
Total.....	2 plants.....	230	0	0	90	140
MISSOURI:						
GAF Corp.	Kansas City	90	0	0	90	0
Huebert Fibreboard, Inc.	Booneville	60	0	0	60	0
Total.....	2 plants.....	150	0	0	150	0
All States	12 plants	1,150	0	0	740	410

1/ Lockwood's Directory of the Paper and Allied Industries--1980.
2/ Capacity not available.

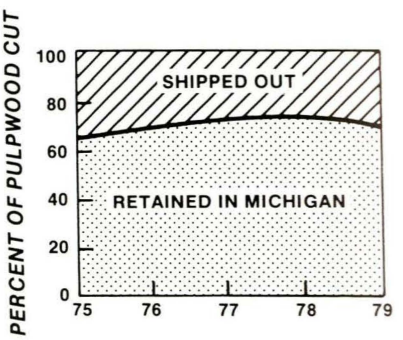
APPENDIX

Table 7.--Lake States pulpwood production[1/] by State of origin and destination, 1975-1979

(In thousand standard cords, unpeeled)

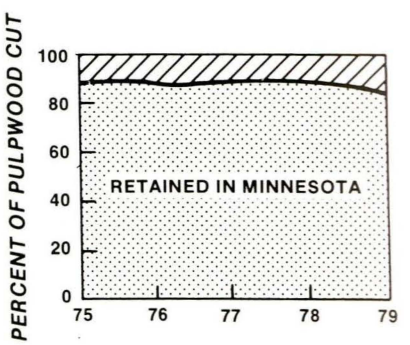
MICHIGAN

	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1975	1,280	--	449	814	17
1976	1,541	--	434	1,081	26
1977	1,595	--	407	1,159	29
1978	1,675	--	404	1,248	23
1979	1,981	(2/)	516	1,428	37
5-year average	1,614	(2/)	442	1,146	26



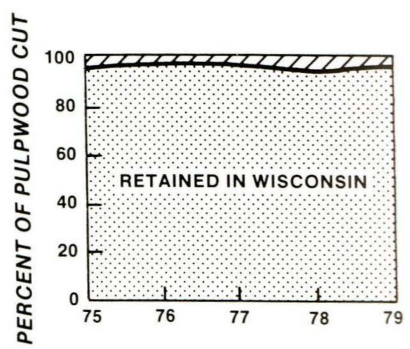
MINNESOTA

	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1975	1,359	1,173	178	--	8
1976	1,309	1,109	182	--	18
1977	1,333	1,149	154	--	30
1978	1,338	1,155	162	--	21
1979	1,458	1,226	169	--	63
5-year average	1,359	1,162	169	--	28



WISCONSIN

	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1975	1,505	20	1,460	19	6
1976	1,840	23	1,784	24	9
1977	1,816	26	1,714	64	12
1978	1,895	26	1,779	70	20
1979	2,109	20	2,024	47	18
5-year average	1,833	23	1,752	45	13



1/Production in 1975-1978 does not include wood for particleboard or waferboard plants.

2/Less than 500 cords.

Table 8.--Lake States pulpwood production from roundwood by forest inventory unit and destination by State, 1979

(In hundred standard cords, unpeeled)

Unit	Total cut	Destination of pulpwood			
		Michigan	Minnesota	Wisconsin	Other
MICHIGAN					
E. Upper Peninsula	4,566	2,673	0	1,693	200
W. Upper Peninsula	5,609	2,506	0	3,101	2
N. Lower Peninsula	7,586	7,309	0	252	25
S. Lower Peninsula	272	272	0	0	0
Total roundwood	18,033	12,760	0	5,046	227
Total residue	1,778	1,518	0	115	145
Total	19,811	14,278	0	5,161	372
MINNESOTA					
Aspen-Birch	6,955	0	5,717	681	557
Northern Pine	5,850	0	5,012	826	12
Central Hardwood	568	0	535	32	1
Prairie	28	0	8	20	0
Total roundwood	13,401	0	11,272	1,559	570
Total residue	1,179	0	991	133	55
Total	14,580	0	12,263	1,692	625
WISCONSIN					
Northeastern	7,862	127	10	7,691	34
Northwestern	7,004	42	149	6,813	0
Central	3,273	0	0	3,270	3
Southwestern	253	0	0	202	51
Southeastern	101	0	0	101	0
Total roundwood	18,493	169	159	18,077	88
Total residue	2,592	298	45	2,160	89
Total	21,085	467	204	20,237	177

Table 9.--Lake States pulpwood production[1] from roundwood by species, State, and Forest Inventory Unit, 1975-1979

(In thousand standard cords, unpeeled)

MICHIGAN

Unit	Aspen					Balsam fir					Birch					Hemlock				
	Annual production					Annual production					Annual production					Annual production				
	1975	1976	1977	1978	1979	1975	1976	1977	1978	1979	1975	1976	1977	1978	1979	1975	1976	1977	1978	1979
Eastern Upper Peninsula	68	93	106	103	125	36	41	48	44	43	6	20	22	28	35	16	35	31	24	26
Western Upper Peninsula	138	176	195	220	204	34	31	45	42	41	8	29	29	46	53	34	44	31	24	19
Northern Lower Peninsula	228	216	222	257	375	4	3	2	1	1	22	20	11	16	21	--	(2/)	(2/)	(2/)	--
Southern Lower Peninsula	1	6	9	6	5	--	--	--	--	--	(2/)	(2/)	(2/)	(2/)	(2/)	--	--	--	--	--
Total	435	491	532	586	709	74	75	95	87	85	36	69	62	90	109	50	79	62	48	45

MINNESOTA

Aspen-Birch	357	372	375	363	392	76	44	60	59	72	16	21	15	2	3	--	--	--	--	--
Northern Pine	236	276	292	306	404	45	30	39	37	46	18	23	13	5	1	--	--	--	--	--
Central Hardwood	22	25	30	35	41	--	(2/)	--	--	(2/)	2	2	2	2	3	--	--	--	--	--
Prairie	--	--	--	--	1	--	--	--	--	--	(2/)	--	--	--	--	--	--	--	--	--
Total	615	673	697	704	838	121	74	99	96	118	36	46	30	9	7	--	--	--	--	--

WISCONSIN

Northeastern	286	345	334	331	364	64	61	57	53	60	33	50	54	62	76	30	27	32	30	26
Northwestern	276	308	329	300	319	33	26	15	21	23	44	56	44	53	63	13	9	8	19	13
Central	25	38	31	37	66	1	2	1	1	1	6	8	5	6	11	3	7	3	4	1
Southwestern	--	--	1	1	1	--	--	--	--	--	(2/)	--	(2/)	(2/)	(2/)	--	--	--	--	--
Southeastern	1	2	1	(2/)	1	--	--	--	(2/)	--	(2/)	(2/)	(2/)	(2/)	1	(2/)	--	--	--	--
Total	588	693	696	669	751	98	89	73	75	84	83	114	103	121	151	46	43	43	53	40
Lake States	1,638	1,857	1,925	1,959	2,298	293	238	267	258	287	155	229	195	220	267	96	122	105	101	85

(Table 9 continued on next page)

1/ Production in 1975-1978 does not include wood for particleboard or waferboard plants.
2/ Less than 500 cords.
3/ Includes small quantity of cedar not shown in other parts of table.

(Table 9 continued)

Unit	Pine					Spruce					Tamarack					Other hardwoods				
	Annual production					Annual production					Annual production					Annual production				
	1975	1976	1977	1978	1979	1975	1976	1977	1978	1979	1975	1976	1977	1978	1979	1975	1976	1977	1978	1979
MICHIGAN																				
Eastern Upper Peninsula	59	88	82	85	119	18	17	27	25	21	1	(2/)	2	1	1	35	82	69	73	83
Western Upper Peninsula	25	43	49	50	48	25	14	21	18	17	1	1	1	1	1	57	88	84	134	174
Northern Lower Peninsula	143	140	119	122	166	2	1	(2/)	(2/)	1	--	--	--	--	--	124	147	162	179	194
Southern Lower Peninsula	8	10	12	20	17	--	--	--	--	--	--	--	--	--	--	2	3	18	3	5
Total	235	281	262	277	350	45	32	48	43	39	2	1	3	2	2	218	320	333	389	456
MINNESOTA																				
Aspen-Birch	116	104	97	89	75	153	129	110	126	119	31	19	24	18	18	12	19	12	17	18
Northern Pine	79	64	73	89	75	49	46	43	38	34	25	17	15	10	16	7	7	5	9	9
Central Hardwood	4	4	4	8	8	--	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	--	(2/)	3	6	8	13	4
Prairie	--	--	--	--	--	--	--	--	(2/)	--	(2/)	1	3	2	2	--	--	--	--	--
Total	199	172	174	186	158	202	175	153	164	153	56	37	42	30	36	22	32	25	39	31
WISCONSIN																				
Northeastern	46	55	68	98	95	18	14	16	16	14	2	2	2	2	1	89	158	152	113	150
Northwestern	64	96	103	122	113	7	4	3	3	4	1	1	1	1	1	81	122	104	159	165
Central	122	124	113	121	127	(2/)	1	(2/)	(2/)	(2/)	1	(2/)	1	(2/)	(2/)	71	140	121	91	121
Southwestern	2	5	8	11	20	--	--	--	--	--	--	--	--	--	--	2	3	4	8	4
Southeastern	5	6	4	5	6	--	--	--	--	1	--	--	--	--	--	1	2	2	2	1
Total	239	286	296	357	361	25	19	19	19	19	4	3	4	3	2	244	425	383	373	441
Lake States	673	739	732	820	869	272	226	220	226	211	62	41	49	35	40	484	777	741	801	928

(Table 9 continued on next page)

Table 9.--continued

Unit	All species[3] Annual production				
	1975	1976	1977	1978	1979
MICHIGAN					
Eastern Upper Peninsula	241	379	390	387	457
Western Upper Peninsula	323	428	458	537	561
Northern Lower Peninsula	523	527	516	575	759
Southern Lower Peninsula	11	19	39	29	27
Total	1,098	1,353	1,403	1,528	1,804
MINNESOTA					
Aspen-Birch	761	708	693	674	696
Northern Pine	459	463	480	494	585
Central Hardwood	31	37	44	58	56
Prairie	2/	1	3	2	3
Total	1,251	1,209	1,220	1,228	1,340
WISCONSIN					
Northeastern	568	712	716	706	786
Northwestern	519	622	608	678	701
Central	229	320	275	260	327
Southwestern	4	8	13	20	25
Southeastern	7	10	7	7	10
Total	1,327	1,672	1,619	1,671	1,849
Lake States	3,676	4,234	4,242	4,427	4,993

Table 10.--Lake States pulpwood production from roundwood by county and species, 1979

(In standard cords, unpeeled)

MICHIGAN

Unit and county[1/]	Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tama-rack	Ash	Aspen	Balsam poplar	Bass-wood
E. UPPER PENINSULA:												
Alger	933	5,098	6,919	8,427	1,404	843	1,760	234	66	10,547	2,494	227
Chippewa	419	4,997	1,165	27,279	1,341	847	3,575	184	46	4,717	455	12
Delta	1,192	10,683	4,172	5,879	2,150	986	3,410	346	420	33,321	3,699	176
Luce	204	3,041	5,739	31,153	1,152	748	3,354	72	18	4,086	390	16
Mackinac	470	4,939	1,168	3,663	794	425	4,315	83	289	12,802	590	39
Menominee	531	9,320	4,557	1,793	754	367	3,608	312	1,751	46,202	1,704	177
Schoolcraft	387	4,698	2,613	26,123	1,522	814	1,243	88	94	13,136	3,073	34
Total	4,136	42,776	26,333	104,317	9,117	5,030	21,265	1,319	2,684	124,811	12,405	681
W. UPPER PENINSULA:												
Baraga	780	4,097	2,438	1,119	1,039	494	984	165	385	13,229	427	70
Dickinson	177	3,995	689	831	566	121	3,380	40	673	40,626	1,838	353
Gogebic	690	3,834	5,055	2,371	1,252	549	1,396	157	616	21,461	0	326
Houghton	143	1,711	894	5,012	1,019	214	360	33	80	3,595	0	77
Iron	912	17,595	3,848	7,177	2,697	642	6,548	273	746	58,094	415	172
Keweenaw	0	247	264	0	13	6	70	2	1	0	0	0
Marquette	1,272	9,400	4,837	18,972	2,564	1,244	3,567	367	1,302	31,206	3,180	353
Ontonagon	65	484	548	390	87	42	271	15	2,403	36,592	39	577
Total	4,039	41,363	18,573	35,872	9,237	3,312	16,576	1,052	6,206	204,803	5,899	1,928
N. LOWER PENINSULA:												
Alcona	0	0	0	4,132	537	0	0	0	260	25,954	1,154	22
Alpena	0	0	0	3,870	536	0	0	0	520	14,808	799	67
Antrim	0	0	0	45	0	0	0	0	35	978	0	104
Arenac	0	0	0	0	306	0	0	0	60	2,025	59	1
Bay	0	0	0	28	21	0	0	0	0	125	0	0
Benzie	0	0	0	99	136	0	0	0	402	6,139	0	408
Charlevoix	0	0	0	0	0	0	0	0	0	42	0	0
Cheboygan	0	360	0	6,035	116	0	50	0	160	31,543	133	742
Clare	0	0	0	1,579	0	0	0	0	20	29,272	0	44
Crawford	0	130	0	15,328	245	146	194	0	4	2,691	0	0
Emmet	0	0	0	8	17	0	0	0	0	3,659	0	0
Gladwin	0	0	0	22	17	0	0	0	55	6,540	22	52
Grand Traverse	0	0	0	3,597	62	57	0	0	104	3,712	0	104
Iosco	0	0	0	7,805	810	47	0	0	0	1,178	44	0
Isabella	0	0	0	0	154	0	0	0	3	5,876	0	0
Kalkaska	0	0	0	2,763	1,114	78	0	0	106	8,322	0	104
Lake	0	0	0	14,317	0	0	0	0	635	15,425	0	416
Leelanau	0	0	0	369	0	0	0	0	364	294	0	364
Manistee	0	0	0	0	362	0	0	0	422	9,656	0	77
Mason	0	0	0	0	2,152	0	0	0	269	8,884	0	304
Mecosta	0	0	0	0	3,165	0	0	0	60	10,053	0	0
Midland	0	0	0	33	41	0	0	0	0	3,005	0	0
Missaukee	0	102	0	729	729	0	153	0	54	9,704	0	52
Montmorency	0	23	0	11,514	132	0	0	0	345	30,743	511	44
Newaygo	0	0	0	0	15,665	0	0	0	234	11,405	0	0
Oceana	0	0	0	0	1,163	0	0	0	377	11,413	0	156
Ogemaw	0	0	0	6,036	0	0	0	0	94	14,912	22	52
Osceola	0	0	0	0	3,296	0	0	0	103	11,328	0	52
Oscoda	0	0	0	24,425	2,210	0	0	0	175	26,885	311	74
Otsego	0	0	0	6,045	1,368	89	0	0	22	25,507	0	21
Presque Isle	0	433	0	2,314	256	0	295	0	800	16,957	577	89
Roscommon	0	102	0	2,739	0	0	153	0	23	15,000	0	21
Wexford	0	0	0	8,640	8,384	0	0	0	325	11,133	0	312
Total	0	1,150	0	122,472	42,994	417	845	0	6,031	375,168	3,632	3,682
S. LOWER PENINSULA												
Allegan	0	0	0	756	756	0	0	0	25	963	0	0
Barry	0	0	0	0	290	0	0	0	0	88	0	0
Gratiot	0	0	0	0	0	0	0	0	2	213	0	0
Ionia	0	0	0	0	18	0	0	0	0	0	0	0
Kalamazoo	0	0	0	0	79	0	0	0	0	0	0	0
Kent	0	0	0	0	504	0	0	0	7	139	0	0
Livingston	0	0	0	0	55	0	0	0	0	0	0	0
Montcalm	0	0	0	0	514	0	0	0	15	2,375	0	0
Muskegon	0	0	0	0	3,627	0	0	0	29	299	0	0
Ottawa	0	0	0	0	9,295	0	0	0	21	456	0	0
Saginaw	0	0	0	0	0	0	0	0	0	63	0	0
Shiawassee	0	0	0	0	114	0	0	0	0	0	0	0
Tuscola	0	0	0	0	243	0	0	0	0	0	0	0
Van Buren	0	0	0	0	516	0	0	0	0	22	0	0
Washtenaw	0	0	0	0	460	0	0	0	0	0	0	0
Total	0	0	0	756	16,471	0	0	0	99	4,618	0	0
State total	8,175	85,289	44,906	263,417	77,819	8,759	38,686	2,371	15,020	709,400	21,936	6,291

(Table 10 continued on next page)

(Table 10 continued)

MICHIGAN

Unit and county[1/]	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hard-woods	All species
E. UPPER PENINSULA:												
Alger	3,851	6,814	1,327	0	595	0	2,713	7,415	143	0	462	62,272
Chippewa	327	1,283	251	0	78	0	680	1,375	24	0	67	49,122
Delta	1,356	7,713	842	0	2,074	0	5,004	8,163	206	0	481	92,273
Luce	992	1,399	339	0	152	0	1,264	1,602	30	0	87	55,838
Mackinac	2,093	2,715	347	0	108	0	1,171	3,454	32	0	92	39,589
Menominee	1,690	5,584	1,054	0	1,200	0	6,000	6,426	461	7	427	93,925
Schoolcraft	854	4,029	823	0	342	0	1,638	1,803	78	0	208	63,600
Total	11,163	29,537	4,983	0	4,549	0	18,470	30,238	974	7	1,824	456,619
W. UPPER PENINSULA:												
Baraga	0	6,479	4,969	0	3,294	0	13,857	10,882	134	0	897	65,739
Dickinson	0	5,337	853	0	1,005	0	3,746	6,166	200	0	407	71,003
Gogebic	0	634	3,122	0	9,010	0	11,473	3,568	153	0	473	66,140
Houghton	0	735	1,550	0	1,523	0	3,226	1,386	5	0	313	21,876
Iron	0	5,354	4,719	0	5,427	0	11,690	7,899	83	0	1,205	135,496
Keweenaw	0	0	15	0	15	0	73	11	0	0	3	720
Marquette	136	10,644	4,393	0	1,724	0	22,593	14,741	1,188	0	823	134,506
Ontonagon	0	747	2,985	0	4,527	0	8,203	6,960	118	0	407	65,460
Total	136	29,930	22,606	0	26,525	0	74,861	51,613	1,881	0	4,528	560,940
N. LOWER PENINSULA:												
Alcona	80	1,144	0	0	0	0	200	2,099	9,723	894	54	46,253
Alpena	140	1,722	0	0	0	0	380	2,597	3,783	432	0	29,654
Antrim	104	10	0	0	0	0	156	156	52	5	47	1,692
Arenac	27	269	23	0	7	0	102	348	1,631	183	6	5,047
Bay	0	42	0	0	0	0	0	0	0	0	0	216
Benzie	439	226	0	0	0	0	416	2,524	570	312	334	12,005
Charlevoix	0	0	0	0	0	0	0	0	0	0	0	42
Cheboygan	640	3,754	0	0	0	0	120	4,181	146	18	0	47,998
Clare	432	904	0	0	0	0	314	4,959	3,287	446	52	41,309
Crawford	58	66	0	0	0	0	12	2,659	3,014	92	52	24,691
Emmet	0	224	0	0	0	0	0	350	60	9	0	4,327
Gladwin	0	381	0	0	0	0	5	959	317	87	32	8,489
Grand Traverse	104	141	0	0	0	0	832	1,040	832	416	82	11,083
Iosco	0	0	0	0	0	0	0	144	0	0	0	10,028
Isabella	2	0	0	0	0	0	6	6	5	2	0	6,054
Kalkaska	104	157	0	0	0	0	56	911	915	82	7	14,719
Lake	405	215	0	0	0	0	643	9,322	16,342	2,062	350	60,132
Leelanau	520	0	0	0	0	0	520	520	416	187	198	3,752
Manistee	416	422	0	0	0	0	429	2,130	7,417	491	416	22,238
Mason	229	526	0	0	0	0	250	4,529	4,268	337	253	22,001
Mecosta	51	3	0	0	0	0	154	370	1,885	322	14	16,077
Midland	0	208	0	0	0	0	0	84	0	0	0	3,371
Missaukee	104	227	0	0	0	0	56	845	506	72	11	13,344
Montmorency	100	2,333	0	0	0	0	275	2,877	4,563	376	24	53,860
Newaygo	106	146	0	0	0	0	366	1,314	7,332	1,518	76	38,162
Oceana	433	199	0	0	0	0	520	2,509	2,965	693	108	20,536
Ogemaw	23	280	0	0	0	0	56	2,268	2,184	223	104	26,254
Osceola	88	266	0	0	0	0	173	1,663	2,261	275	27	19,532
Oscoda	75	2,640	0	0	0	0	157	2,584	7,463	538	58	67,595
Otsego	21	1,923	0	0	0	0	23	3,160	644	6	21	38,850
Presque Isle	240	2,670	0	0	0	0	600	4,558	1,208	165	0	31,162
Roscommon	21	157	0	0	0	0	25	329	1,991	46	22	20,629
Wexford	521	170	0	0	0	0	1,162	4,231	1,543	516	497	37,434
Total	5,483	21,425	23	0	7	0	8,008	66,226	87,323	10,805	2,845	758,536
S. LOWER PENINSULA:												
Allegan	0	0	0	0	0	0	25	50	600	258	0	3,433
Barry	0	0	0	0	0	0	0	0	6	0	0	384
Gratiot	1	0	0	0	0	0	2	4	10	6	1	239
Ionia	0	0	0	0	0	0	0	0	0	0	0	18
Kalamazoo	0	0	0	0	0	0	0	0	0	0	0	79
Kent	3	0	0	0	0	0	7	17	53	21	2	753
Livingston	0	0	0	0	0	0	0	0	0	0	0	55
Montcalm	0	15	0	0	0	0	23	83	620	156	0	3,801
Muskegon	0	29	0	0	0	0	42	194	1,347	291	0	5,858
Ottawa	0	21	0	0	0	0	28	137	950	205	0	11,113
Saginaw	0	0	0	0	0	0	0	0	0	0	0	63
Shiawassee	0	0	0	0	0	0	0	0	0	0	0	114
Tuscola	0	0	0	0	0	0	0	0	0	0	0	243
Van Buren	0	0	0	0	0	0	5	10	65	15	0	633
Washtenaw	0	0	0	0	0	0	0	0	0	0	0	460
Total	4	65	0	0	0	0	132	495	3,651	952	3	27,246
State total	16,786	80,957	27,612	0	31,081	0	101,471	148,572	93,829	11,764	9,200	1,803,341

(Table 10 continued on next page)

(Table 10 continued)

MINNESOTA

Unit and county[1/]	Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar	Basswood
ASPEN-BIRCH:												
Carlton	0	1,278	0	2,082	229	520	1,919	644	0	9,398	520	0
Cook	0	7,760	0	4,739	23	0	11,171	0	0	29,609	679	0
Koochiching	0	33,031	0	11,403	1,334	1,124	58,893	15,370	0	133,256	8,157	0
Lake	0	2,446	0	12,433	825	0	17,169	155	0	22,264	520	0
St.Louis	0	26,819	0	30,954	6,571	2,346	29,402	2,116	182	197,206	8,022	0
Total	0	71,334	0	61,611	8,982	3,990	118,554	18,285	182	391,733	17,898	0
NORTHERN PINE:												
Aitkin	0	830	0	1,144	0	0	975	907	109	49,331	104	0
Becker	0	0	0	1,040	0	0	0	0	0	2,233	0	0
Beltrami	0	11,342	0	10,865	2,049	53	7,929	6,280	68	54,650	2,169	49
Cass	0	1,175	0	11,451	1,691	309	405	912	45	51,638	1,040	0
Clearwater	0	1,554	0	3,170	0	0	2,229	1,975	0	20,947	0	0
Crow Wing	0	17	0	5,478	0	0	73	0	0	8,076	0	0
Hubbard	0	2,176	0	11,822	622	0	627	371	0	33,053	0	0
Itasca	0	26,229	0	4,519	87	561	8,362	3,033	128	158,094	3,089	0
Lake of the Woods	0	2,562	0	8,169	64	0	10,364	1,336	0	15,207	889	0
Mahnomen	0	0	0	1,040	0	0	0	179	0	2,080	0	0
Roseau	0	208	0	5,224	0	0	3,054	259	0	7,084	0	0
Wadena	0	0	0	6,004	101	0	175	0	0	1,454	0	0
Total	0	46,093	0	69,926	4,614	923	34,193	15,252	350	403,847	7,291	49
CENTRAL HARDWOOD:												
Chisago	0	0	0	16	238	0	0	0	0	312	0	0
Hennepin	0	0	0	0	0	0	0	0	0	0	0	0
Isanti	0	0	0	520	1,144	0	0	0	0	520	0	0
Kanabec	0	0	0	520	104	0	0	0	56	5,045	0	51
Mille Lacs	0	0	0	0	0	0	0	0	447	18,921	0	410
Morrison	0	8	0	1,040	0	0	8	0	56	4,088	0	51
Otter Tail	0	0	0	1,040	0	0	0	228	0	1,040	0	0
Pine	0	0	0	1,059	235	0	34	0	0	11,151	0	0
Ramsey	0	0	0	0	0	0	0	0	0	0	0	0
Sherburne	0	0	0	1,527	88	0	0	0	0	0	0	0
Todd	0	0	0	810	108	0	0	0	0	106	0	0
Total	0	8	0	6,532	1,917	0	42	228	559	41,183	0	512
PRAIRIE:												
Polk	0	0	0	0	0	0	0	2,010	0	832	0	0
Total	0	0	0	0	0	0	0	2,010	0	832	0	0
State total	0	117,435	0	138,069	15,513	4,913	152,789	35,775	1,091	837,595	25,189	561

Unit and county[1/]	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hard-woods	All species
ASPEN-BIRCH:												
Carlton	0	24	0	0	0	0	24	0	0	0	0	16,638
Cook	0	262	0	0	0	0	0	0	0	0	0	54,243
Koochiching	0	269	0	0	0	0	125	145	0	0	0	263,107
Lake	0	987	0	0	0	0	0	48	0	0	0	56,847
St.louis	0	902	4	0	14	0	92	45	4	2	0	304,681
Total	0	2,444	4	0	14	0	241	238	4	2	0	695,516
NORTHERN PINE:												
Aitkin	0	102	2	0	19	0	62	32	49	21	0	53,687
Becker	0	0	0	0	0	0	0	0	0	0	0	3,273
Beltrami	0	278	0	0	47	0	274	107	137	274	0	96,571
Cass	0	246	0	0	17	0	14	25	93	37	0	69,098
Clearwater	0	0	0	0	0	0	0	0	0	0	0	29,875
Crow Wing	0	0	0	0	0	0	0	0	0	0	0	13,644
Hubbard	0	0	0	0	0	0	0	0	0	0	0	48,671
Itasca	0	380	2	0	22	0	82	84	32	14	0	204,718
Lake of the Woods	0	0	0	0	0	0	0	0	0	0	0	38,591
Mahnomen	0	0	0	0	0	0	0	0	0	0	0	3,299
Roseau	0	0	0	0	0	0	0	0	0	0	0	15,829
Wadena	0	0	0	0	0	0	0	0	0	0	0	7734
Total	0	1,006	4	0	105	0	432	248	311	346	0	584,990
CENTRAL HARDWOOD:												
Chisago	0	0	0	0	0	0	0	0	0	0	0	566
Hennepin	0	0	0	0	600	0	0	0	0	0	0	600
Isanti	0	0	0	0	0	0	0	0	0	0	0	2,184
Kanabec	0	192	0	0	48	0	0	48	96	0	0	6,160
Mille Lacs	0	1,542	0	0	386	0	0	386	771	0	0	22,863
Morrison	0	192	0	0	48	0	0	48	96	0	0	5,635
Otter Tail	0	0	0	0	0	0	0	0	0	0	0	2,308
Pine	0	1,281	0	0	0	0	0	0	0	0	0	13,760
Ramsey	0	0	0	0	103	0	0	0	0	0	0	103
Sherburne	0	0	0	0	0	0	0	0	0	0	0	1,615
Todd	0	0	0	0	0	0	0	0	0	0	0	1,024
Total	0	3,207	0	0	1,185	0	0	482	963	0	0	56,818
PRAIRIE:												
Polk	0	0	0	0	0	0	0	0	0	0	0	2,842
Total	0	0	0	0	0	0	0	0	0	0	0	2,842
State total	0	6,657	8	0	1,304	0	673	968	1,278	348	0	1,340,166

(Table 10 continued on next page)

(Table 10 continued)

WISCONSIN

Unit and county 1/	Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar	Basswood
NORTHEASTERN:												
Florence	1	1,368	212	974	3,489	216	655	30	923	38,420	3	0
Forest	50	18,699	3,845	1,218	4,847	268	4,234	129	2,608	40,896	6	570
Langlade	0	2,484	320	513	3,074	46	327	46	2,162	24,198	10	1,785
Lincoln	41	4,127	1,252	932	2,148	252	801	160	1,916	32,729	0	2,650
Marinette	32	3,125	1,792	16,884	10,898	578	1,398	49	1,649	79,384	94	1
Oconto	0	3,604	264	3,864	10,875	617	429	22	119	15,113	4	0
Oneida	74	19,949	4,516	10,383	7,820	1,869	5,066	231	2,629	62,535	0	1,941
Shawano 2/	0	168	12,636	2,386	3,503	127	0	0	512	25,798	0	7
Vilas	5	6,923	963	2,938	2,440	1,330	1,318	42	258	45,252	0	851
Total	203	60,447	25,800	40,092	49,049	5,303	14,228	709	12,776	364,325	117	7,805
NORTHWESTERN:												
Ashland	28	7,696	436	4,375	1,511	341	944	29	1,349	35,943	0	203
Barron	0	0	0	235	29	0	0	0	1,121	632	0	176
Bayfield	7	1,959	89	15,994	2,952	515	218	0	404	50,280	0	0
Burnett	0	26	0	9,189	8,016	505	0	0	7	3,778	0	0
Douglas	0	479	0	39,765	2,795	193	74	0	73	38,444	0	59
Iron	8	1,498	387	922	424	297	239	32	847	26,385	0	869
Polk	0	0	0	221	11	22	0	0	0	285	0	0
Price	107	5,950	2,457	1,066	1,581	255	1,610	560	4,589	50,641	0	2,734
Rusk	0	133	249	134	156	0	0	10	1,832	16,560	0	653
Sawyer	14	2,464	7,468	6,185	3,612	432	220	43	3,432	41,886	0	985
Taylor	0	2,271	1,521	383	793	51	515	25	1,824	27,137	0	635
Washburn	0	66	0	9,622	543	167	298	0	142	26,269	0	0
Total	164	22,542	12,607	88,091	22,423	2,778	4,118	699	15,620	318,240	0	6,314
CENTRAL:												
Adams	0	0	0	13,404	9,948	966	23	0	114	360	0	0
Chippewa	0	38	143	475	1,328	50	0	42	847	9,304	0	559
Clark	0	30	401	1,293	1,938	1,191	0	0	699	11,821	0	15
Eau Claire	0	0	0	3,466	1,809	71	0	0	414	1,015	0	40
Jackson	0	0	0	10,148	2,188	336	0	22	91	1,309	0	0
Juneau	0	0	0	13,749	5,017	580	0	0	44	1,998	0	0
Marathon	0	1,210	686	1,232	3,619	218	31	0	1,038	20,011	0	55
Marquette	0	0	0	2,168	4,175	370	123	0	4	172	0	0
Monroe	0	0	0	3,283	2,888	164	0	0	32	239	0	0
Portage	0	2	78	4,348	3,920	1,790	0	34	62	3,607	0	0
Waupaca	0	15	4	1,039	3,027	864	0	0	88	6,720	0	0
Waushara	0	0	0	2,600	6,966	1,521	0	0	28	94	0	0
Wood	0	0	9	7,974	5,235	1,714	30	0	167	8,889	0	0
Total	0	1,295	1,321	65,179	52,058	9,835	207	98	3,628	65,539	0	669
SOUTHWESTERN:												
Buffalo	0	0	0	389	1,009	138	0	0	0	0	0	0
Crawford	0	0	0	0	0	0	0	0	0	407	0	158
Dunn	0	0	0	1,362	7,492	440	0	0	2	0	0	0
Grant	0	0	0	0	0	0	0	0	0	800	0	330
Iowa	0	0	0	0	0	0	0	0	0	64	0	26
Lacrosse	0	0	0	252	1,169	154	0	0	2	0	0	0
Lafayette	0	0	0	0	0	0	0	0	0	65	0	27
Pepin	0	0	0	517	985	88	0	0	0	0	0	0
Pierce	0	0	0	0	0	0	0	0	0	15	0	0
Richland	0	0	0	0	20	0	0	0	0	0	0	0
Sauk	0	0	0	489	1,774	492	0	0	7	0	0	0
Trempealeau	0	0	0	582	2,018	456	0	0	1	14	0	0
Vernon	0	0	0	0	74	0	0	0	0	22	0	0
Total	0	0	0	3,591	14,541	1,768	0	0	12	1,387	0	541
SOUTHEASTERN:												
Brown	0	0	0	0	422	0	571	0	0	363	0	0
Columbia	0	0	0	768	3,475	35	0	0	52	75	0	0
Dodge	0	0	0	0	0	0	0	0	0	0	0	0
Door	0	0	0	0	36	0	0	0	0	0	0	0
Green	0	0	0	0	148	29	0	0	0	0	0	0
Green Lake	0	0	0	0	50	5	9	0	14	0	0	0
Outagamie	0	0	0	0	104	0	0	0	8	790	0	0
Waukesha	0	0	0	274	969	62	0	0	0	0	0	0
Total	0	0	0	1,042	5,204	131	580	0	74	1,228	0	0
State total	367	84,284	39,728	197,995	143,320	19,815	19,133	1,506	32,110	750,719	117	15,329

(Table 10 continued on next page)

(Table 10 continued)

WISCONSIN

Unit and county[1]	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hard-woods	All species
NORTHEASTERN:												
Florence	0	2,636	906	0	3,127	0	3,410	1,968	348	0	38	58,724
Forest	14	7,905	1,990	0	5,435	0	8,147	4,788	261	208	1,889	108,007
Langlade	0	4,356	2,344	0	5,726	40	13,496	4,887	766	0	834	67,414
Lincoln	0	3,306	576	0	2,992	0	3,597	4,003	1,227	0	124	62,833
Marinette	72	10,033	902	0	2,516	0	2,601	3,480	1,000	241	260	136,989
Oconto	6	1,524	95	0	341	0	465	565	14	0	5	37,926
Oneida	0	19,120	2,243	0	2,673	0	7,078	7,315	5,030	312	376	161,160
Shawano [2]	0	868	382	0	5,392	315	3,950	1,846	675	1	219	58,785
Vilas	0	15,392	1,568	0	2,765	0	6,763	2,436	2,339	247	498	94,328
Total	92	65,140	11,006	0	30,967	355	49,507	31,288	11,660	1,009	4,243	786,166
NORTHWESTERN:												
Ashland	0	9,233	1,541	0	3,492	0	5,716	2,871	784	99	82	76,673
Barron	0	1,624	476	0	216	0	2,168	1,290	1,935	410	72	10,384
Bayfield	0	11,046	96	0	571	0	708	393	626	11	3	85,872
Burnett	0	256	6	0	27	0	40	140	0	0	0	21,990
Douglas	0	1,946	7	0	17	0	28	22	0	0	1	83,903
Iron	0	2,431	535	0	8,162	0	5,496	3,317	298	28	26	52,201
Polk	0	0	0	0	0	0	0	0	0	0	0	539
Price	0	10,326	2,717	0	21,182	0	11,712	7,960	1,952	432	109	127,940
Rusk	0	3,043	714	0	1,880	0	2,902	1,800	939	174	80	31,259
Sawyer	0	10,270	2,103	0	5,918	0	9,693	6,430	2,359	430	442	104,386
Taylor	0	3,294	1,317	0	14,135	0	6,878	4,753	999	565	23	67,119
Washburn	0	471	11	0	145	0	168	157	85	59	3	38,206
Total	0	53,940	9,523	0	55,745	0	45,509	29,133	9,977	2,208	841	700,472
CENTRAL:												
Adams	0	264	8	0	345	0	250	196	5,210	2,935	0	34,023
Chippewa	0	1,316	667	0	1,228	0	1,278	1,216	1,321	743	17	20,572
Clark	0	1,538	303	0	1,826	0	1,541	1,005	4,857	2,274	21	30,753
Eau Claire	0	620	137	0	434	0	523	1,192	4,156	1,097	72	15,046
Jackson	0	404	37	0	372	0	149	258	1,562	650	20	17,546
Juneau	0	758	30	0	777	0	136	506	2,968	2,341	2	28,906
Marathon	0	1,851	1,014	0	25,094	7	10,498	13,143	2,556	2,484	9	84,756
Marquette	0	420	1	0	426	0	212	223	2,235	1,763	1	12,293
Monroe	0	224	19	0	163	0	91	124	842	384	1	8,454
Portage	0	423	5	0	57	0	243	377	1,217	1,359	1	17,523
Waupaca	0	130	49	0	557	76	299	136	406	208	51	13,669
Waushara	0	28	8	0	43	0	26	62	1,021	274	5	12,676
Wood	0	528	133	0	902	0	454	539	2,668	1,850	6	31,098
Total	0	8,504	2,411	0	32,224	83	15,700	18,977	31,019	18,362	206	327,315
SOUTHWESTERN:												
Buffalo	0	0	0	0	0	0	0	0	0	0	0	1,536
Crawford	0	65	0	31	4	0	2	195	333	126	0	1,321
Dunn	0	1	1	0	20	0	9	9	4	2	0	9,342
Grant	0	132	0	54	0	0	0	362	1,002	376	0	3,056
Iowa	0	10	0	4	0	0	0	33	167	63	0	367
Lacrosse	0	1	0	0	6	0	3	5	0	0	1	1,593
Lafayette	0	10	0	4	0	0	0	31	168	62	0	367
Pepin	0	0	0	0	0	0	0	0	0	0	0	1,590
Pierce	0	0	0	0	4	0	2	2	0	0	0	23
Richland	0	0	0	0	0	0	0	0	0	0	0	20
Sauk	0	39	6	0	22	0	36	40	37	14	0	2,956
Trempealeau	0	0	0	0	7	0	3	3	0	0	0	3,084
Vernon	0	0	0	0	0	0	0	0	0	0	0	96
Total	0	258	7	93	63	0	55	680	1,711	643	1	25,351
SOUTHEASTERN:												
Brown	0	0	0	0	0	0	0	0	0	0	0	1,356
Columbia	1	184	4	0	124	0	131	134	406	374	3	5,766
Dodge	0	301	0	0	0	0	0	0	0	0	0	301
Door	0	0	0	0	0	0	0	0	0	0	0	36
Green	0	0	0	0	0	0	0	0	0	0	0	177
Green Lake	4	3	1	0	25	0	14	8	0	0	8	141
Outagamie	0	37	7	0	22	0	34	38	0	0	0	1,040
Waukesha	0	0	0	0	0	0	0	0	0	0	0	1,305
Total	5	525	12	0	171	0	179	180	406	374	11	10,122
State total	97	128,367	22,959	93	119,170	438	110,950	80,258	54,773	22,596	5,302	1,849,426

[1] Includes only those counties that supplied pulpwood in 1979.

[2] Includes Menominee County.

Table 11. Central States pulpwood production by State and destination, 1975-1979

(In thousand standard cords, unpeeled)

Year	Illinois			Indiana			Iowa			Missouri		
	Total	Destination		Total	Destination		Total	Destination		Total	Destination	
		Central States	Other States		Central States	Other States		Central States	Other States		Central States	Other States
1975	105	60	45	135	58	77	50	48	2	116	43	73
1976	116	65	51	172	78	94	45	41	4	132	55	77
1977	111	53	58	161	66	95	50	46	4	123	44	79
1978	100	49	51	190	81	109	42	40	2	99	42	57
1979	102	52	50	204	89	115	69	56	13	101	42	59

Table 12.--Trends in receipts of roundwood and residue as pulpwood, Central States, 1975-1979

(In thousand standard cords, unpeeled)

Type of material and area	1975	1976	1977	1978	1979
ROUNDWOOD:					
Illinois	13	18	24	30	33
Indiana, Iowa, Missouri	74	81	62	70	96
Total	86	99	86	100	129
RESIDUE:					
Illinois	64	71	62	54	59
Indiana, Iowa, Missouri	86	102	98	95	107
Total	150	173	160	149	166
All Material	236	272	246	249	295

Blyth, James E., and W. Brad Smith.
1980. Pulpwood production in the north central region, by county, 1979. U.S. Department of Agriculture Forest Service, Resource Bulletin NC-56, 22 p. U.S. Department of Agriculture Forest Service, North Central Forest Experiment Station, St. Paul, Minnesota.

Discusses 1979 production and receipts and recent production for other years in the Lake and Central States. Shows Michigan, Minnesota, and Wisconsin production by species for each county and compares production by Forest Inventory Unit with that of previous years. Presents 1979 production and receipts data for Illinois, Indiana, Iowa, and Missouri, and shows four production classes by county.

KEY WORDS: roundwood, residue, receipts, Lake States, Central States.

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